

Preliminary Restoration Plan, Section 206

Clear Creek and Iowa River Aquatic Ecosystem Restoration

1. Project:

1.1 Clear Creek and Iowa River Aquatic Ecosystem Restoration

PWI No. 167430

Congressional District: Iowa 01

2. Location:

2.1 The project area is located in and around Iowa City and Coralville, Johnson County, Iowa. It stretches along the Iowa River floodplain from north of Interstate 80 to Burlington Street in downtown Iowa City and along the Clear Creek corridor from its mouth to several miles upstream where the creek passes under Interstate 380. The project area is located approximately nine miles downstream of Coralville Reservoir. The Iowa River watershed encompasses nearly 3,115 square miles upstream from the project area. The Clear Creek watershed includes 100 square miles of highly productive agricultural land in Johnson and Iowa Counties and enters the Iowa River in Coralville. The project area is within and adjacent to the communities of Iowa City and Coralville as well as portions of the University of Iowa Campus. Land cover in the area includes riparian and floodplain wetland habitat bordered by urban development, woodlands and farmed or pastured land. The project area is identified on Figure 1.

3. Project Description:

3.1 Project Proposal. Restoration goals for this project follow:

1. Restore and enhance wetland and riparian habitat within the Iowa River Corridor to improve water quality, fish and wildlife habitat, and restore esthetic value.
2. Restore and enhance stream and wetland habitat within the Clear Creek Corridor to improve water quality, maintain biodiversity, and increase fish and wildlife habitat value.

3.2 Project Features. This project is made up of several areas within and adjacent to the Iowa River and Clear Creek floodplains. Individual project areas and proposed features within them are described below.

3.2.1 Iowa River Corridor - There are opportunities for wetland and riparian habitat restoration or enhancement within several areas along the corridor. These include Iowa City Water Works Park, Edgewater Park, the Peninsula, Lower Finkbine wetlands, and the University of Iowa riverfront.

3.2.1.1 Water Works Park (*Figure 1, A*)- The entire Water Works Park encompasses approximately 250 acres adjacent to the Iowa River. Although the land cover of the area was once woodland, wetland and prairie but has since been logged, farmed, and a sand and gravel operation was constructed on the site. Recently the City of Iowa City has constructed wellheads and is constructing a new water treatment plant on a portion of the site. Adjacent to the river, within the floodplain, is approximately 21 acres of forested wetland

with dense understory and a large amount of woody debris, the adjacent land is covered with a variety of grasses. Proposed features are described as follows:

Forested Wetland- This feature consists of selectively clearing understory trees and shrubs less than four inches in diameter and conducting a prescribed burn within this 21-acre tract. Clearing of thick understory vegetation will allow light penetration to the forest floor, burning will remove grasses and leaf litter and allow germination of native grasses and forbes. Approximately 7 acres adjacent to the above area will be planted with wet prairie species adding habitat diversity, decreasing surface runoff and increasing infiltration. A prescribed burn schedule will be developed for this site.

Created Wetlands- This feature consists of excavating two wetland areas (1 and 0.5 acre) within the southwest corner of the area up to an average depth of 18 inches. The excavated material will be mounded on the downhill edge of the wetland to assist in impounding water.

Wetland and Prairie Buffer- Prairie and wetland species will be planted within and around both the created wetlands and forested wetland and encompassing nearly 25 acres. This buffer will serve to increase habitat diversity and to increase infiltration of overland runoff before it reaches the adjacent wetlands and Iowa River.

3.2.1.2 Edgewater Park (Figure 1, B) - This area is adjacent to the Iowa River in Coralville and includes the old Coral Industrial Park and Edgewater Park, a city park. The area is presently designated as an EPA Brownfields Assessment Demonstrations Pilot Area and work is currently in progress on the site assessment and redevelopment planning. Immediately south of Interstate 80, and adjacent to the city park, the bankline is eroded and has a steep slope. Adjacent to the eroding shoreline a channel delivers urban runoff directly to the river. Downstream from the park there are approximately 2 acres forested wetlands adjacent to the Iowa River. From the forested area downstream past the mouth of Clear Creek (1/2 mile), the shoreline is degraded with a steep slope and few remaining trees.

Section 206 Project funding will not be used for the Brownfield assessment or for the associated treatment of any hazardous, toxic or radioactively contaminated sites. Additionally, if sites planned for development via the 206 project are subsequently found to be contaminated, construction will not commence until responsible parties clean the site, or another site location will be determined. The proposed features are described as follows:

Created Stormwater Wetland- This proposed 0.5 acre wetland site is between I-80 and Edgewater park and includes a ditch in which runoff from the adjacent developed areas enters the Iowa River. The site will be excavated to an average depth of 18 inches and suitable wetland species will be planted to improve water quality in the adjacent river and improve the existing habitat.

Riparian Restoration/Shoreline Stabilization (Figure 1, C)- This feature includes measures to restore a riparian zone and stabilize approximately 1 mile of shoreline on the Iowa River. It will be accomplished through a combination of revetment, weirs, and vegetation, which will be evaluated and specific measures selected in feasibility.

Forested Wetland Enhancement (Figure 1, C)- A 1.7 acre stand of forested wetland is located on the right bank of the Iowa River adjacent to the Brownfields site. The understory is dense and contains a large amount of woody debris. This feature would selectively clear small trees and shrubs (<4 inch diameter) from the understory to allow light penetration to the forest floor and restore native vegetation. A prescribed burn schedule will be developed for this site.

3.2.1.3 Peninsula (Figure 1, D)- The Peninsula is adjacent to the Iowa River and its land cover includes a transition from floodplain terrace to upland and includes wetlands, forested wetlands, woodlands, and old field. This area was formerly covered by a diversity of timber, prairie and wetlands. It is immediately south of the Water Works Park, described above, and connected by a wooded corridor within the floodplain. A floodplain

terrace encompasses approximately 10-acres and is covered with reed canary grass. Downstream from this terrace are approximately 10-acres of forested wetland. The proposed features are described as follows:

Floodplain Terrace- The terrace is approximately 10 acres in size. Within this 10 acres, two wetlands will be constructed by excavation. Each will have an average depth of 18 inches and a maximum depth of 6 feet. The excavated wetlands and surrounding area will be planted with a suitable wetland and prairie mix. Approximately 100 suitable trees will be planted in throughout the 10 acres.

Forested Wetlands- The current 10 acre forested wetland has a dense understory and large amount of woody debris. This feature would selectively clear small trees and shrubs (less than four inches diameter) from the understory. The area would then undergo a prescribed burn. This would allow light penetration to the forest floor and restore native vegetation. A prescribed burn schedule will be developed for this site.

3.2.1.4 Lower Finkbine (Figure 1, E)- The lower Finkbine wetlands are within the Iowa River floodplain but connection to the river has been separated from the river by development. They include approximately 9 acres of wetland that can be broken into three distinct types. These include forested wetlands, emergent wetlands, and Sandbar willow (*Salix exigua*) thickets. The forested wetlands are dominated by box elder (*Acer negundo*) and include green ash (*Fraxinus pennsylvanica*) and slippery elm (*Ulmus rubra*). Emergent wetland includes cattails (*Typha latifolia*), river bullrush (*Scirpus fluviatilis*), softstem bullrush (*Scirpus validus*) and various sedge species but it appears as if reed canary grass is invading this area. Within the center of the wetland site a depression exists, that has seasonally open water or emergent wetlands. The surrounding development and associated changes to runoff have altered water levels and duration of flooding within this wetland complex. The proposed features are described as follows:

Vegetation Modification- A dense stand of willows covers nearly 2 acres of the site. These willows will be cut for use as willow posts in other project locations and the remaining willows cleared. To the west of the site is a dense 2-acre stand of cattails. Cattails will be cleared through either mowing or burning and the ground elevations will be excavated and mounded to create a diversity of elevations. This will result in a greater diversity of wetland species growing onsite.

Planting- A buffer consisting of prairie species will be planted between the athletic fields and wetland. Wetland species will be planted over approximately 7 acres including those areas cleared from willows and cattails.

3.2.1.5 University of Iowa Riverfront (Figure 1, F)- The Iowa River flows through the University of Iowa Campus where campus buildings and open areas border the river. The shoreline of the Iowa River has been modified and in most areas is bordered by turfgrass and eroding bankline. Immediately south of Park Road Bridge and adjacent to the University of Iowa Arts campus is an 800-foot stretch of floodplain terrace. On the opposite bank is an 1100-foot section of shoreline, which is susceptible to erosion. Both banks of the river have the potential for habitat improvement through restoration of native vegetation. The proposed features are described as follows:

West shoreline- The west shore was divided into two areas. They include an approximate 860 linear foot length of shoreline adjacent to the Park Road Bridge with a low to moderate erosion risks. This area will require minor regrading of the bank, intensive bank planting, and vegetation management. An approximately 790 linear foot length of shoreline adjacent to the Hancher Pedestrian Bridge is of medium erosion risk. This area will require bankline stabilization efforts. Both areas will be planted with suitable native vegetation.

East shoreline- The east shore was divided into three separate areas. The 500 linear foot section adjacent to the Park Ridge Road Bridge is experiencing low to medium erosion. The 260 linear foot center section is experiencing high erosion. The 400 linear foot section adjacent to the Hancher Pedestrian Bridge is undergoing medium erosion. Each area will undergo a variety of bankline stabilization efforts, and will be planted with suitable vegetation.

3.2.2 Clear Creek Corridor- Clear Creek enters the Iowa River in Coralville immediately downstream of the Iowa River Power Dam and across the river from the Peninsula. The creek drains approximately 100 square miles of both agricultural land and portions of the city of Coralville. Wooded bluffs and ravines to the south of Clear Creek are oak-dominated woodlands. In the less disturbed areas of the bluffs, there are infrequent or rare plant species such as maidenhair fern (*Adiantum pedatum*), shooting star (*Dodecatheon meadia*) and snow trillium (*Trillium nivale*). The bottomland woods and terraces include common floodplain species such as box elder, silver maple, river birch and common wetland plants. Vegetated wetlands and oxbows throughout the floodplain contain sedge meadows and forested wetland habitat including willows, river birch, and dogwood. This corridor suffers from fire suppression, erratic episodes of stormwater and disturbance. These have destabilized slopes, caused erosion, and inhibited growth of native grasses and forbes. Proposed features in this area include:

I-380 to I-80 (Figure 1, G)- For a 3,600-foot length of the creek, a three-tiered riparian buffer zone will be constructed. Existing trees of greater than 6 inch diameter will remain in place. The first buffer zone will consist of a 35 foot section (perpendicular to the shoreline) planted with trees such as willow, poplar, silver maple, and green ash. The second buffer zone will consist of approximately a 10-foot wide planting of a prairie mix. The third tier will be a 25-foot buffer of prairie grasses, which will intercept the surface water and enhance infiltration so that runoff becomes shallow groundwater flow. To ensure bankline stabilization rock weirs or similar structures will be constructed where the current is the most aggressive at the bankline.

I-80 to Deer Creek Road (Figure 1, H)- Approximately a 2,300-foot stretch of the creek runs adjacent to I-80 and has little vegetation. The banks are approximately 15 feet high with mostly vertical slopes on the outside of each meander. Areas experiencing erosion will undergo the following actions. The slopes will be graded and planted with prairie grass and/or willow posts from other project locations. The toe of the slopes will be stabilized with rock where necessary and weir or similar structures will be placed in the creek to reduce the flows against the degrading shoreline and provide aquatic habitat. A three tiered riparian zone and buffer will be established on this section of the creek in the same methodology described above.

Deer Creek Park (Figure 1, H)- This 14-acre tract of land is between Deer Creek Road and the section of creek described above. Within the tract, approximately three acres will be excavated up to a depth 18 inches in order to establish wetlands. They will be planted with wetland vegetation and a prairie mix will be planted over the remainder of the area.

Deer Creek Road (Figure 1, I)- This channelized portion of Clear Creek (4500 feet) will be restored to natural sinuosity and slope for the area including meanders and riffle pool habitat creation. Tile lines will be broken in the adjacent previously farmed wetland to restore the wetland hydrology onsite. This will restore approximately 80 acres of wetlands. The riparian zone will be restored through establishment of a three-tiered buffer similar to that described above.

James Street Extension (Figure 1, J)- Two sources of stormwater runoff from adjacent development enter the Clear Creek floodplain in this area. To ensure the protection of the adjacent wetland habitat, an area south of James Street Extension will be excavated, creating a shallow wetland with an approximate two-foot berm on the downgradient slope. This 6-acre area will be planted with suitable species to encourage stormwater flow to enter the soil profile before entering adjacent wetlands and Clear Creek.

Clear Creek Floodplain (Figure 1, K) -Immediately to the east of 22nd Avenue and north of Clear Creek is a 23-acre area of wetlands. This area will be selectively cleared of small trees and shrubs (less than four inches in diameter) and undergo a prescribed burn.

Hawkeye Wetlands (Figure 1, L)- The Hawkeye wetlands are approximately 13 acres of wetland bordered by farmland, and urban neighborhoods. Surface water from urban neighborhoods, farmland and a golf course enter the area. Tree species on the site include box elder, black ash, elm, cottonwood and black willow. There are sedges, smartweed, and reed canary grass throughout the wetlands. The wetlands drain into a channel, which enters Clear Creek approximately 1/2 mile to the north. These wetlands have been affected by adjacent development and land use changes. Although wetland hydrology is present onsite, the area has been degraded by nutrient loading and stormwater runoff. Proposed features include:

South Wetland- The South Wetland Complex is estimated at 8.7 acres. Approximately two thirds of this area is covered with reed canary grass. To restore this area, up to 18 inches will be excavated from a 5.8-acre tract and the area will be planted with wetland species. For the remainder of the wetland (2.9 acres), selected tree removal (trees less than a 4 inch diameter), and a burn will occur. This area will then be planted with a wet prairie mix. The area along the south end of the wetland, adjacent to an agricultural field will be planted with approximately 2 acres of prairie grass to provide a buffer between future developments on this field and the wetland.

North Wetland- The North Wetland Complex is delineated to be a 3.7-acre area. This area will also be excavated to approximately 18 inches, with excavated material placed on the downhill side of the wetland to assist in impounding water onsite. This area will then be planted with wetland species. A 4-acre buffer zone of prairie grasses will be planted around this wetland.

3.3 Project Purpose. Modifications to the Midwestern landscape including clearing of forests, suppression of fire, introduction of grazing and row crops, as well as urbanization have contributed to habitat degradation. Straightening of stream channels and increased runoff, including heavy nutrient loads and increased erosion, have degraded water quality. The purpose of this project is to restore and enhance wetland, riparian, and stream habitat along and adjacent to the Iowa River and Clear Creek. It will also restore a section of Clear Creek, which has been channelized. By restoring and enhancing wetland, riparian zones and adjacent prairie the historic infiltration that occurred in the native landscape will be restored thus improving water quality, reducing runoff, and restoring groundwater hydrology to adjacent wetland communities.

Prairie, wetland and woodland once dominated the landscape of Iowa. Modification of that landscape has been extensive with over 90% altered by agriculture, logging and urban development. The 1839 Government Land Office survey of the area includes a description of the Peninsula adjacent to the Iowa River with its "diversified timber and prairie". That area contained trees such as oaks, ash, birch, locust, and elm and is described as having plentiful springs on the gentle slopes between the bluffs and river. The Clear Creek Corridor was presumably similar where there are bluffs to the south of the creek and a wide floodplain with wetlands and bottomland forest. Those areas within the corridor containing rare plant species and high floristic quality are examples of what once existed in this region.

On the Iowa River, there are two low head dams. The Iowa River Power dam was constructed in the 1880's to power a mill. Downstream two miles is another low head dam near Burlington Street in Iowa City. This dam was constructed in 1906 and added to in 1927. This section of the Iowa River frequently flooded prior to the construction of Coralville Reservoir, which went into operation in 1958. The reservoir is nearly nine miles upstream from Coralville. Sediment detention by the reservoir has contributed to streambed degradation and higher erosion rates downstream. Instream habitat, connectivity, and floodplain wetlands have all been impacted by dam construction and floodplain development. Currently both Iowa City and the University rely on the Iowa River for water supplies and maintaining the water quality within the river is important. The Lower Finkbine wetlands were once connected to the Iowa River but have been separated by a levee and development. The streambanks of the Iowa River have steepened and have little native vegetation remaining.

The Clear Creek watershed drains nearly 100 square miles, which are mainly agricultural with heavy urbanization occurring in Johnson County. Turbidity, nutrient, and pesticide concentrations from Clear Creek runoff effect water quality and the remanding wetland communities within the floodplain. In addition, the increasing urbanization and related runoff contribute to increased creek flooding. Twice during the 1990's, Clear Creek flooded effecting the business district in Coralville and closing Interstate 80. Since then, the section of Clear Creek from its mouth to one mile upstream has been modified to increase the conveyance of floodwater.

By restoring the described project areas and implementing the measures detailed above wetland and stream habitat will be restored, water quality will be improved and biodiversity will be enhanced. These improvements will benefit the ecosystem and nearly 80,000 people that live in the surrounding communities.

3.4 Project Outputs. The proposed project will restore or enhance approximately 50 acres of forested and nonforested wetland habitat and provide nearly 32 acres of prairie buffer along the Iowa River. Approximately 1 mile of Iowa River bankline will be restored through bioengineering and reestablishment of riparian zone. This shoreline restoration will also improve the adjacent instream aquatic habitat by providing shade, reducing runoff and erosion.

In the Clear Creek corridor, 1 mile of stream channel will be restored and an additional 1-mile will have a riparian zone reestablished and instream structures installed to reduce erosion and improve habitat quality. Instream benefits from these measures will also extend the next 2 miles downstream to where the creek enters the Iowa River. Approximately 160 acres of wetlands will be created or enhanced adjacent to and within the Clear Creek floodplain.

The features described above will provide outputs in the form of reduced turbidity and nutrient load and thus improved water quality in Clear Creek and the Iowa River. Within the creek and river, there will be improvements to habitat for aquatic and terrestrial insects, mollusks, amphibians, and fish. Stabilization of the stream bank, pools and riffles created, and the restored riparian zone will benefit the local fishery by increasing habitat diversity, aerating water within the stream and decreasing the sediment load. A diversity of wetland, woodland, prairie, river and stream in this proximity will provide increased habitat for resident and migratory songbirds and shorebirds. The importance of these habitats is significant in that a majority of the surrounding landscape has been modified.

Erratic stormwater events and sediment laden runoff both adversely effect existing wetland communities and aquatic habitat both within Clear Creek and along the Iowa River. Vegetation and land use are some of the most important variables influencing soil infiltration and runoff.¹ The native landscape and associated vegetation allowed for infiltration of rainwater into the soil surface thus providing a source for groundwater fed wetlands and streams. Modified landscapes usually exhibit rapid runoff and high rates of erosion. This produces high turbidity in streams, erratic water levels, high nutrient load, and reduces habitat quality for aquatic species downstream.

Restoration of native plant communities adjacent to the Iowa River and Clear Creek will increase infiltration rates and restore natural hydrology to the wetland communities. This will reduce erosion and thus instream turbidity and nutrient load as well as restore natural rates of runoff. The restoration and creation of riparian zones and buffers will also slow overland runoff and assure that nutrients are absorbed into the plants as opposed to entering the water.

3.5 Benefit Importance. Water quality is of concern on the Iowa River and in the Clear Creek watershed. The U.S. EPA has listed both sections of the Iowa River and Clear Creek as “impaired waters”, or as not fully supporting Clean Water Act goals. Nutrients, sedimentation, turbidity, and pesticides in the waters are areas of concern. Increase in wetland and riparian area acreage and infiltration of surface water will improve water quality in both Clear Creek and the Iowa River. The importance of improving this water quality is signified by the fact that nearly 80,000 people live in the immediate vicinity and that the University of Iowa and Iowa City currently utilize the Iowa River for drinking water.

The Iowa River Corridor plays a major role in defining Iowa City and the University of Iowa Campus, both, which are bisected by the river. Coralville is also bordered by the Iowa River and Clear Creek flows through the city. The importance of these water resources to the community is shown by the desire to preserve, restore, and protect them for both environmental reasons with the intention to utilize them as a resource for esthetics and recreation. Restoration efforts adjacent to the Brownfields in Coralville also contribute to the desire to revitalize the area while preserving and enhancing the natural resource of the Iowa River.

The U.S. Fish and Wildlife Service lists the following species as occurring within Johnson County. The Bald eagle (*Haliaeetus leucocephalus*) is known to winter along the Iowa River Corridor and has been observed in the project area. Restoration of a forested riparian area and additional habitat diversity along the Iowa River will benefit that species. The Indiana bat (*Myotis sodalis*) is listed as occurring in the area and habitat along Clear Creek provides summer habitat for the species including suitable maternity roost habitat. The Eastern prairie fringed orchid (*Platanthera leucophaea*) is also listed as occurring in the county.

¹ Dunne, T. and L. Leopold. 1978. Water in Environmental Planning. W.H. Freeman and Company. pp 164-167.

Although threatened by previously discussed problems, the Clear Creek Corridor contains dozens of rare and uncommon species in this part of the state and large remnant areas. This includes the smooth clustered sedge (*Carex aggregata*) and narrow leaved sedge (*Carex tenera*) listed as special concern species by the State of Iowa. Numerous other species found along the corridor are representative of intact remnant plant communities. A floristic survey was completed in 1997 and found as many as 338 native plant species along the corridor.² The remnant native population is of significance and, the report called the corridor to be "among the more notable areas in Iowa". Reduction of erratic stormwater flows and erosion as well as reintroduction of fire allow that population to be expanded and maintained within the corridor. This restoration effort will contribute to expansion of that native plant community and to the sustainability of this important remnant of native biodiversity.

The proximity of the restoration to these communities and University will provide opportunities for education and recreation in and around a native ecosystem that has been so highly altered in the region. It will be an example of incorporating water resources and native ecosystems into community development.

3.6 LERRDs (Lands, Easements, Rights-of-way, Relocations, Disposal areas). The Iowa River/Clear Creek Aquatic Ecosystem Restoration Project is made up of several areas all within the Iowa River and Clear Creek floodplains. The University of Iowa and the cities of Iowa City and Coralville are the project sponsors. The lands encompassed in this project are a combination of commercial, industrial, recreational, and multi-family residential. No navigational servitude lands are involved. The estimate for LERRD and acquisition expenses is \$1,800,000. A model Project Cooperation Agreement (PCA) will be executed upon project approval. A gross appraisal will be prepared during the ERR phase.

3.7 Relationship to Other Projects. This project and its intended benefits relate closely to several other projects and proposed within the vicinity. These relate to ecosystem restoration, watershed management, recreation and community development. Implementation of this ecosystem restoration project will build upon and contribute to each of these separate initiatives. It will contribute to the restoration, enhancement and protection of the local ecosystem.

Adjacent to the Iowa River is the old Coral Industrial Park and an EPA Brownfields demonstration project. Components of this proposed aquatic restoration project lie within the boundaries of that Brownfields site and contribute to the restoration and redevelopment of the area. There are existing multi use trail systems in Iowa City, Coralville, and the University of Iowa with plans to expand those trails within the proposed restoration sites. The University owns a portion of the Clear Creek Corridor and its master plan calls for the preservation and protection of both natural and cultural resources in the corridor. The Johnson County Resource Conservation and Development office has initiated a land stewardship project within the Clear Creek Corridor, with the goal of restoring native vegetation and groundwater infiltration on a portion of the bluffs adjacent to Clear Creek. The Iowa Valley Conservation and Development Association has applied for an EPA Sustainable Development Grant to assist funding of the Oakdale Creek Watershed and Clear Creek Corridor Restoration and Development Project. The primary goal is developing and implementing a watershed scale planning and development strategy that promotes sustainable economic development opportunities in concert with long term preservation and enhancement of the ecosystem. Johnson County Soil and Water Conservation District also has underway the Clear Creek Watershed Enhancement Project to create a model for watershed protection and enhancement that includes both urban and rural communities and merges environmental protection with economic development.

3.8 Alternatives. Alternatives to the proposed restoration measures will be investigated during the feasibility phase of the project. Those alternatives include different combinations and dimensions of the proposed project features. Examples of alternatives include wetland depth and spatial area, restored stream slope, revegetation strategies and shoreline stabilization methods. Selection of the preferred alternative will be based upon maximized ecosystem benefits with use of habitat models and incremental cost analysis.

3.9 Methodologies. Habitat Evaluation Procedures (HEP) or Wildlife Habitat Appraisal Guide (WHAG) will be used in determining fish and wildlife habitat benefits within the project. Appropriate species or community

² Conservation Design Forum, 1998. Floristic Inventory and Habitat Assessment for the Clear Creek Corridor, Coralville, Iowa.

models will be used to analyze project outputs, and IWR Plan software will be used as the incremental analysis tool in the feasibility phase, which will be included in the environmental restoration report and environmental assessment.

4. Views of Sponsors:

4.1 The project sponsors have expressed an interest in ecosystem restoration. Iowa City and Coralville have both funded floristic inventories and efforts to develop conceptual restoration plans for different areas. The University funded a study of the Iowa River bankline and has a bankline restoration effort in progress on campus. Sponsors interest in this project is described in their letters of intent.

5. Views of Federal, State, and Regional Agencies:

5.1 This project has been discussed with and had input from the local Natural Resource Conservation Service Office and the Iowa Valley Resource Conservation and Development Office. Both have expressed support for this project.

6. Environmental Compliance Requirements:

6.1 All necessary Federal and State environmental compliance documents will be prepared during the Ecosystem Restoration Report phase of this project. An environmental assessment will be required which will also incorporate necessary Clean Water Act Permits and state water quality certification. In addition, evidence of a determination of effect to significant historic properties that has been fully coordinated with the State Historical Society of Iowa and relevant Native American tribes and interested public entities shall be included in the environmental assessment.

7. Costs and Benefits:

7.1 Costs:

	Section 206 Project	Section 206 w/Recreation Features
Estimated Federal Cost	\$3,707,692	\$3,993,000
Non-Federal Contribution	<u>\$1,966,450</u>	<u>\$2,281,000</u>
Total Estimated Project Costs	\$5,704,142	\$6,274,000

7.2 Project benefits are described above in section 3.4. Those benefits include restoration of a significant acreage of wetland, stream, and riparian zone within the Clear Creek and Iowa River floodplains throughout this urban and rapidly developing setting. This restoration contributes to other restoration and sustainable development efforts within the area to cumulatively provide substantial benefits to the local ecosystem.

7.3 Annual inspection and maintenance is estimated at approximately \$15,300 each year. It includes riprap replacement, mowing, and prescribed burns. Environmental monitoring of the project is also recommended with focus on vegetation and water quality parameters. This may include vegetation surveys of wetland, riparian, prairie and woodlands to monitor both percent cover and species composition. Water quality measurements may include turbidity and dissolved oxygen as well as surveys of fish and macroinvertebrates within the Iowa River, Clear Creek and associated wetlands. O&M Costs are detailed in Table 2 below.

Table 2. Estimated Annual Operation and Maintenance Costs				
Item	Quantity	Unit	Unit Cost	Cost (Rounded)
Operation	0	Hours	\$ 0	\$ 0
Maintenance				
Inspection	120	hours	\$ 50.00	\$ 6,000.00
Riprap ⁽¹⁾	32	tons	\$ 37.50	\$ 1,200.00
Wetland/Prairie Mix Planting Maintenance ⁽²⁾	42	acres	\$ 35.00	\$ 1,470.00
Prairie Grass Planting Maintenance ⁽²⁾	10	acres	\$ 30.00	\$ 300.00
Prescribed Fire ⁽³⁾	19	acres	\$ 200.00	\$ 3,800.00
Rehabilitation ⁽⁴⁾			\$ -	\$ -
Includes 20% contingency			Total:	\$15,324.00
Note 1: It is anticipated that 0.1% of all riprap or rock used will need to be replaced annually.				
Note 2: Maintenance will be required over half of the project acreage annually. This includes mowing for the first two seasons.				
Note 3: This is based upon applying a prescribed burn to 1/3 of the prairie/wet prairie acreage each year. Forest maintenance includes prescribed burns each 5 years.				
Note 4: Rehabilitation cannot be accurately measured. Rehabilitation is the reconstructive work that significantly exceeds the annual operation and maintenance requirements identified above and that is needed as a result of major storms and flood events.				

8. **Schedule:**

8.1 Project schedule is provided below.

Action	Time	Date	FY
Letter of Intent received from Sponsor (Name)	1 month	Apr 00	00
Division Office Endorsement of PRP, Receipt of Work Allowance	3 months	Oct 00	01
Completion Ecosystem Restoration Report/Environmental Compliance	1 year	Oct 01	02
Completion of Plans and Specifications	6 months	Mar 02	02
Div. Commander Signs PCA/Construction Work Allowance Request	3 months	Jul 02	02
Acquisition of LERRDs (right-of-way acquisition)	9 months	Mar 03	03
Contract Award	3 months	Jun 03	03
Notice to Proceed	1 month	Jul 03	03
Construction Start		Jul 03	03
Complete Construction	2 years	Jul 05	05

9. **Supplemental Information:**

9.1 The local sponsors may wish to contribute work in kind to this project, specific work will be determined at a later date. Both Iowa City and Coralville have proposed plans for expansion of their multi-use trails along the Iowa River and Clear Creek Corridor. The sponsors have expressed an interest in developing interpretive trails in conjunction with this ecosystem restoration project. This is a unique opportunity to provide both recreational and educational access to the local ecosystem. Opportunity for planning and development of trail features will be pursued in accordance with Planning Guidance Letter No. 59 (USACE 1998). Recreation features may not increase the project cost by more than 10% (\$570,000), without approval of the Assistant Secretary of the Army and

recreation facility development is cost shared 50/50. A project-monitoring plan will be developed during the feasibility study. Cost of project monitoring will not exceed 1% of the project cost and not last more than 5 years, they will be cost shared 65% Federal and 35% Non-federal.

10. Financial Data:

10.1 Section 206 Project Costs (Thousands).

Federal Funding Needs

	Totals	Sponsor	Federal	FY01	FY02	FY03	FY04	FY 05
Report	\$261		\$261	\$240	\$21			
P & S	\$203		\$203		\$203			
Implementation	\$5,240	\$1,996	\$3,244			\$430	\$1,800	\$1,014
Total	\$5,704	\$1,996	\$3,708	\$240	\$224	\$430	\$1,800	\$1,014

Note: Report and Plans and Specifications are initially federally financed, and costs distributed as part of the non-Federal share of project costs during implementation. Monitoring costs have not been included at this time.

10.2 Project including Recreation Features (Thousands).

Federal Funding Needs

	Totals	Sponsor	Federal	FY01	FY02	FY03	FY04	FY 05
Section 206	\$5,704	\$1,996	\$3,708	\$240	\$224	\$430	\$1,800	\$1,014
Recreation Features	\$570	\$285	\$285				\$170	\$115
Total	\$6,274	\$2,281	\$3,993	\$240	\$224	\$430	\$1,970	\$1,129

10.3 Non-Federal Requirements:

	206 Project	With Recreation Features
LERRD	\$1,800,000	\$1,800,000
Cash	\$196,000	\$481,000
Work-in-kind	TBD	--
Annual OMRR&R	\$15,324.00	\$15,324.00

11. Federal Allocations to Date:

11.1 This item shall be completed on fact sheets accompanying funding requests.

Ecosystem Restoration Report: none

Plans and Specifications: none

Implementation (Construction): none